UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/552,496	04/23/2007	James Kang	L2:00544	7243

71897 7590 06/27/2008

KAUTH , POMEROY , PECK & BAILEY ,LLP
P.O. BOX 19152
IRVINE, CA 92623

EXAMINER	
LIN, KUANG Y	

ART UNIT	PAPER NUMBER
1793	

MAIL DATE	DELIVERY MODE
06/27/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/552,496	KANG, JAMES	
	Examiner	Art Unit	
	Kuang Y. Lin	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *5/19/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over either US 5,647,921 to Odagawa et al. in view of US 4,791,979 to Liebermann or US 4,648,437 to Pryor et al. and further in view of US 5,384,203 to Apfel

Odagawa et al. substantially shows the invention as claimed except that they do not shows to obtain the viscosity of the bulk solidifying amorphous in the regime of about 0.1 to 10,000 poise and to foam the molten amorphous alloy prior to casting a foam strip having a thickness of at least 0.1 mm . However, since the puddle of the bulk solidifying amorphous alloy on the chill surface must be in a stable condition (see col. 4, lines 17-21 of US 4,791,979 to Liebermann) and also since the viscosity is one of the critical factors to determine the strip thickness (see col. 3, lines 42-60 of Pryor et al.), it would have been obvious to obtain an appropriate viscosity of the casting alloy through a routine experimentation such that the injected melt will form a stable puddle. Further, Apfel shows to obtain the foamed amorphous article by first foaming the molten amorphous alloy before casting. Thus, it would have been obvious to foam the molten amorphous alloy of the primary reference prior to casting if a foamed amorphous strip product is designated. With respect to claims 5, 6, 9, 10, 12, 13, 20, and 23, it would have been obvious to obtain these process parameters through a routine experimentation for a specific alloy product to be cast.

With respect to claim 14, that alloy composition is deemed to be conventional (see, for example, US 4,148,669 to Tanner et al.)

3. Applicant's arguments filed May 19, 2008 have been fully considered but they are not persuasive.

a. Applicant in the response stated that none of the prior art references shows the stabilization step. However, the body of the claim does not include that limitation. Further, even if the claim does include that limitation, since the word “stabilizing” is a relative term, it is considered that the bulk solidifying amorphous alloy of the prior art references is also being stabilized at the casting temperature.

b. Applicant further stated that Odagawa et al. focus entirely on the mechanics of the casting process such as roller speed, slit size, slit geometry, cooling rate, etc. for forming sheet having thickness below 100 micron. However, it is a common knowledge that the thickness of the thin strip is also determined by surface tension between the molten metal and the chill surface, the ejection temperature and viscosity of the melt (see col. 3, lines 56-60 of Pryor et al.). Thus, it would have been obvious to obtain the optimal ejection temperature and viscosity of the particular melt through routine experimentation.

c. Applicant in page 7, 1st para. of the response stated that Odagawa et al. never describe preferred viscosity levels. However, both secondary references do show that it is known to maintain the melt viscosity around 0.01 to 1 poise for casting the thin strip. In response to applicant's arguments against the

references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

d. Applicant in page 9, 2nd para. of the response stated that the text of Liebermann in col. 4, lines 16-21 assumes that the reader will be casting "below" the stated viscosity. However, the examiner does not agree with applicant's interpretation of the text. The text actually teaches that one shall not cast the melt below the stated viscosity.

e. Applicant in page 10, 2nd para. of the response stated that Liebermann patent is directed to cast sheets that are at least a factor of two thinner than those claimed in the current application. However, it is a common knowledge that the thickness of the cast strip is determined by number of factors, such as the viscosity and the temperature of the melt, the ejection pressure, the rotational speed of the chill wheel, the surface tension between the melt and the chill wheel surface, diameter of the nozzle, etc. (see col. 3, lines 42-60 of Pryor et a.) It would have been obvious to manipulate those process parameters to obtain the cast strip with a designated thickness.

f. Applicant in page 11 of the response stated that Afpel is directed to a batch method for forming foam material and his final product is a bulk foam metallic glass rather than a strip. However, it is noted that all other references involve forming an amorphous strip by casting the amorphous alloy onto the

moving chill substrate. Thus, in view of the prior art teaching as a whole, it would have been obvious to form a foamed amorphous strip shall a strip is the designated final product.

4. It is noted that this application and 10/552,667 are represented by the same law firm. The invention of the instant application is substantially the same as that of 10/552,667 except the additional foaming step. However, the foaming step is deemed to be conventional. It is also noted that both application have a same priority date and have different inventorship.

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 571-272-1179. The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy V. King can be reached on 571-272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kuang Y. Lin/
Primary Examiner, Art Unit 1793

6-23-08